



ENGINEERING STUDY

NEW 202C2

Kahului, HI

Advanced Public Radio, Inc

Requesting a New facility

Pursuant to MB Docket No. 20-343, DA No. 21-463 (April 21, 2021)

November, 2021

NEW 202C2
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TECHNICAL STATEMENT

This technical statement and attached exhibits were prepared on behalf of Advanced Public Radio, Inc, in support of a NEW NCE FM radio station on Channel 202C2 to be licensed to the community of Kahului, Hawaii on the Island of Maui..

TECHNICAL PARAMETERS

Facilities Proposed

Location (NAD83)	20° 39' 26" N Latitude, 156° 21' 36.2" W Longitude
Channel	202C2 (88.3MHz)
Tower Overall AGL Height-	60.6m
Tower ASR	N/A (ATC Tower# 370950)
Proposed Antenna	2-Bay, Half-Wave spaced EPA Type 3-Directional
Antenna AGL Height-	15m
Site AMSL Height-	1,356m
COR AMSL Height	1,371m
HAAT	772m
ERP	0.85kW Directional (EXHIBIT A)

BASIS OF CALCULATIONS

All exhibits and calculations in this application were prepared using the USGS National Elevation Dataset (NED) 3 Second US Terrain database unless otherwise noted. Contours are calculated using 360 evenly spaced radials (due to terrain) unless otherwise noted. All population calculations were based on the 2010 *Census Block Data* from the US Bureau of Census¹.

POPULATION SERVED

The proposed NCE facility will encompass 1,136 sq. km (Land area and populated islands only). and a total of 140,488 people (2010 Census).

47 CFR § 73.509 COMPLIANCE

As demonstrated in Exhibit B, the proposed NCE facility will utilize directional antenna and will meet all contour protection requirements toward other stations as specified in 47 CFR § 73.509. Select protection contours are shown in Exhibit B1, B2, B3, B4. The antenna pattern is shown in Exhibit A.

NCE FAIR DISTRIBUTION OF SERVICE ANALYSIS.

As shown in Exhibit C, there are three NCE stations in Kahului that provide the same or better coverage than the proposed facility. Therefore, there are no fair distribution points available for this facility.

¹ As specified in FCC MB DA 21-885, Page 5, 6.

TV CHANNEL 6 PROTECTION

There are no full-power TV6 facilities within 257 km of the proposed facility; therefore, the proposed 202C2 at Kahului, HI is compliant with 73.525.

REASONABLE ASSURANCE

Reasonable assurance for the proposed tower was received by Tiffany Yu, an authorized representative of the tower owner, American Tower Corporation, Broadcast Business Development Manager, at (781) 926-7820 or tiffany.yu@americantower.com.

COMMUNITY COVERAGE

As demonstrated in Exhibit D, the proposed facility will cover 100% of Kahului, HI in area and population with the 60dBu signal. Kahului comprises 15.2 sq km (land area) and as of the 2010 Census the population of the city was 26,328.²

ENVIRONMENTAL CONSIDERATIONS

The proposed antenna will be attached to an existing tower. The tower is owned American Tower Corp. The tower is not registered.

The attachment of the proposed antenna will not alter the existing proposed tower structure for purposes of the Nationwide Programmatic Agreement and the NHPA Section 106. There are no other non-excluded RF source located on the tower supporting the proposed antenna.

The proposed antenna will operate at a maximum power level of 850W ERP and will operate at 15m AGL. The proponent proposes to operate with a 2-bay, half-wave spaced directional antenna. Based upon the FCC “FM Model”³ Power Density vs. Distance calculator using a “EPA Type 3, Opposed U Dipole” type antenna setting, the maximum power density at 2m AGL contributed by the

² https://en.wikipedia.org/wiki/Kahului,_Hawaii

³ <https://www.fcc.gov/general/fm-model>

proposed antenna is expected to be $29.9\mu\text{W}/\text{cm}^2$ or 15% of the permitted $200\mu\text{W}/\text{cm}^2$ limit for uncontrolled exposure. There are no tall buildings near the proposed tower. There are several other non-excluded facilities operating on or near the proposed tower. Since the operating and antenna parameters are not known, a field survey of the NIER in the area will be conducted to verify compliant operation, and, if necessary, appropriate fencing and marking will be added to the area of concern.

Based upon the preceding evaluation, the proposed antenna it is believed that the proposed antenna is excluded from further Environmental Assessment under 47CFR 1.1306 and 1.1307.

The proposed FM station along with other users at the site will maintain an occupational safety policy and agrees to reduce power or cease operation during periods of maintenance to avoid potentially harmful exposure of personnel to non-ionizing RF radiation.

Respectfully Submitted

A handwritten signature in dark ink, appearing to read "Bert Goldman", with a long, sweeping horizontal line extending to the right.

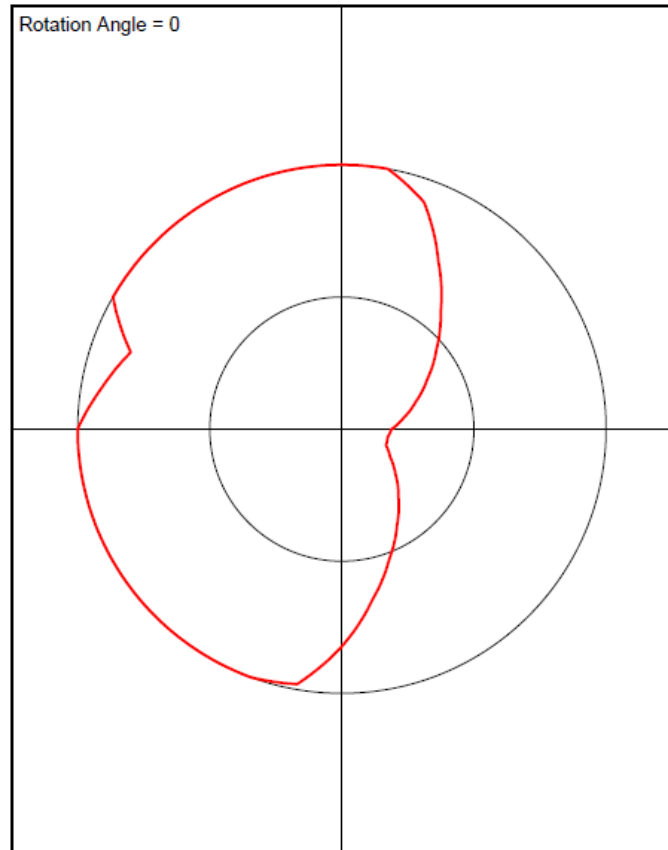
Bert Goldman
Technical Consultant

EXHIBIT A- Antenna Pattern

NEW 202C2 Kahului Antenna Pattern

Pre-Rotation Antenna Pattern....

Azimuth (deg)	Relative Field
0.0	1.0
5.0	1.0
10.0	1.0
15.0	0.956
20.0	0.912
25.0	0.8215
30.0	0.731
35.0	0.6565
40.0	0.582
45.0	0.5245
50.0	0.467
55.0	0.4195
60.0	0.372
65.0	0.334
70.0	0.296
75.0	0.266
80.0	0.236
85.0	0.212
90.0	0.188
95.0	0.182
100.0	0.176
105.0	0.177
110.0	0.178
115.0	0.1945
120.0	0.211
125.0	0.238
130.0	0.265
135.0	0.299
140.0	0.333
145.0	0.3755
150.0	0.418
155.0	0.471
160.0	0.524
165.0	0.591
170.0	0.658
175.0	0.74
180.0	0.822
185.0	0.901
190.0	0.98
195.0	0.99
200.0	1.0
205.0	1.0
210.0	1.0
215.0	1.0
220.0	1.0
225.0	1.0
230.0	1.0
235.0	1.0
240.0	1.0
245.0	1.0
250.0	1.0
255.0	1.0
260.0	1.0
265.0	1.0
270.0	1.0
275.0	0.96
280.0	0.92
285.0	0.885
290.0	0.85
295.0	0.925
300.0	1.0
305.0	1.0
310.0	1.0
315.0	1.0



320.0	1.0
325.0	1.0
330.0	1.0
335.0	1.0
340.0	1.0
345.0	1.0
350.0	1.0
355.0	1.0

EXHIBIT B- ALLOCATION STUDY (LMS)

ComStudy 2.2 search of channel 202 (88.3 MHz Class A) at 20-39-26.0 N, 156-21-36.2 W.

CALL	CITY	ST CHN CL	DIST	SEP	BRNG	CLEARANCE
KIPH	HANA	HI 202 A	38.44	115.00	74.2	.02 dB Exhibits B
KHPR	HONOLULU	HI 201 C0	168.77	152.00	296.7	.14 dB Exhibits B
KHPR	HONOLULU	HI 201 C0	169.18	152.00	296.8	9.38 dB
KHPH	KAILUA	HI 204 C0	113.36	86.00	156.2	11.19 dB

LMS as of 11/5/2021

EXHIBIT B1 Overall Contour Protections Map

PROP 202C2- 850 W DA, 772m HAAT (1372m AMSL)- Contours

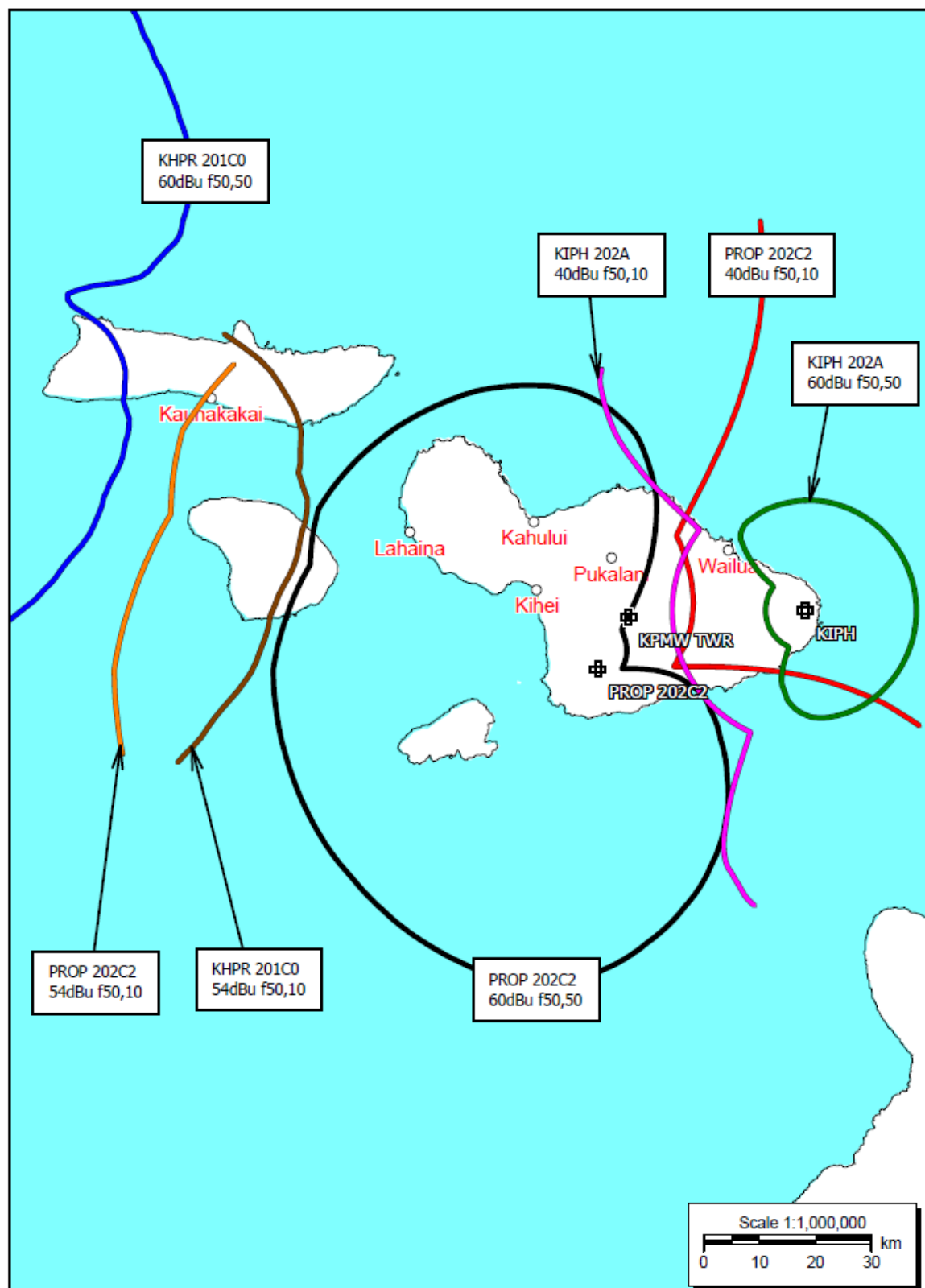


EXHIBIT B2- Southeast Overlap PROP 202C2 to KIPH 202A

(South) PROP 202C2 40dBu f50,10 to KIPH 60dBu f50,50

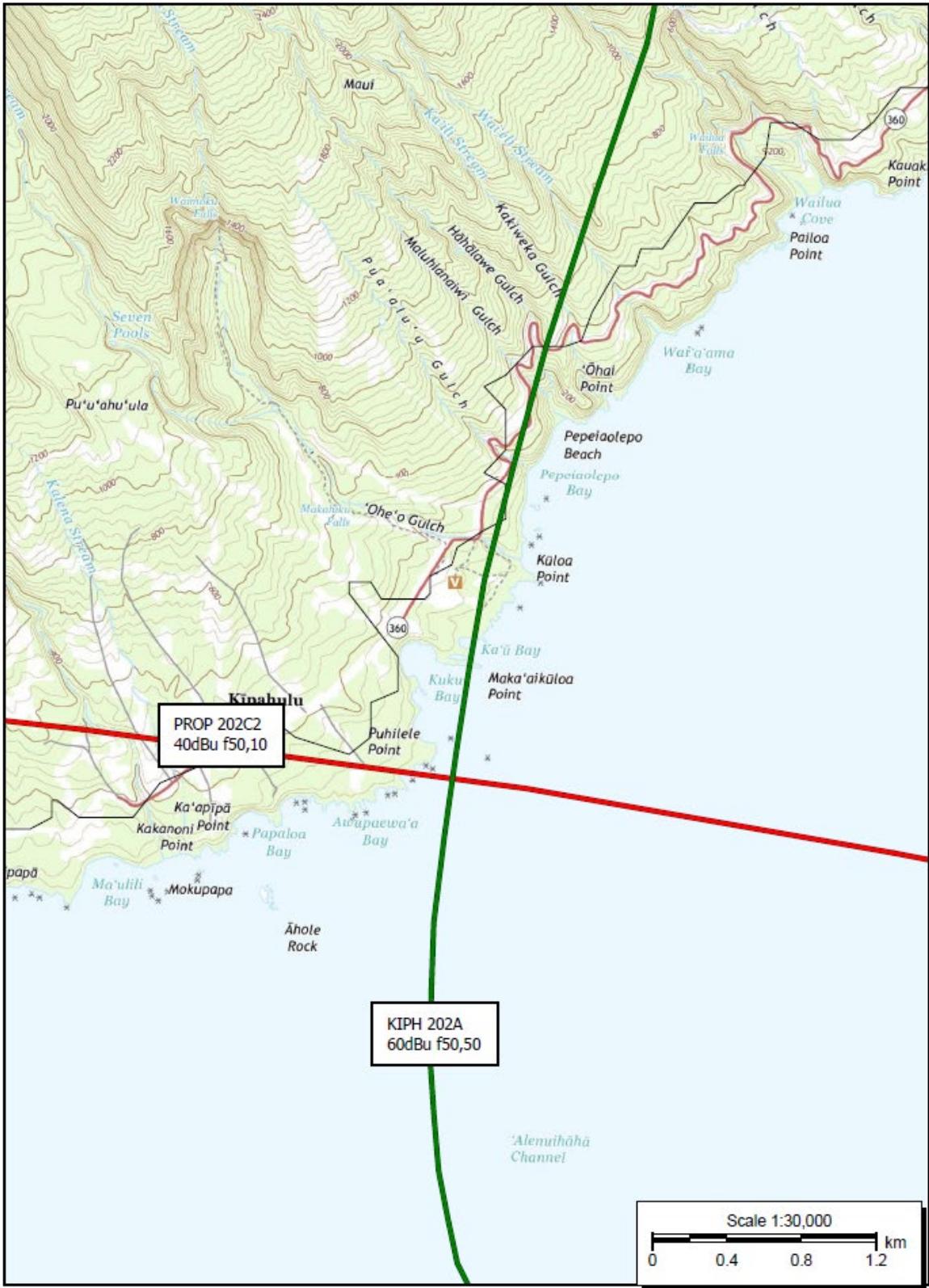


EXHIBIT B3- Southwest Contours, KIPH to PROP 202C2

(Southwest) KIPH 40dBu f50,10 to PROP 202C2 60dBu f50,50

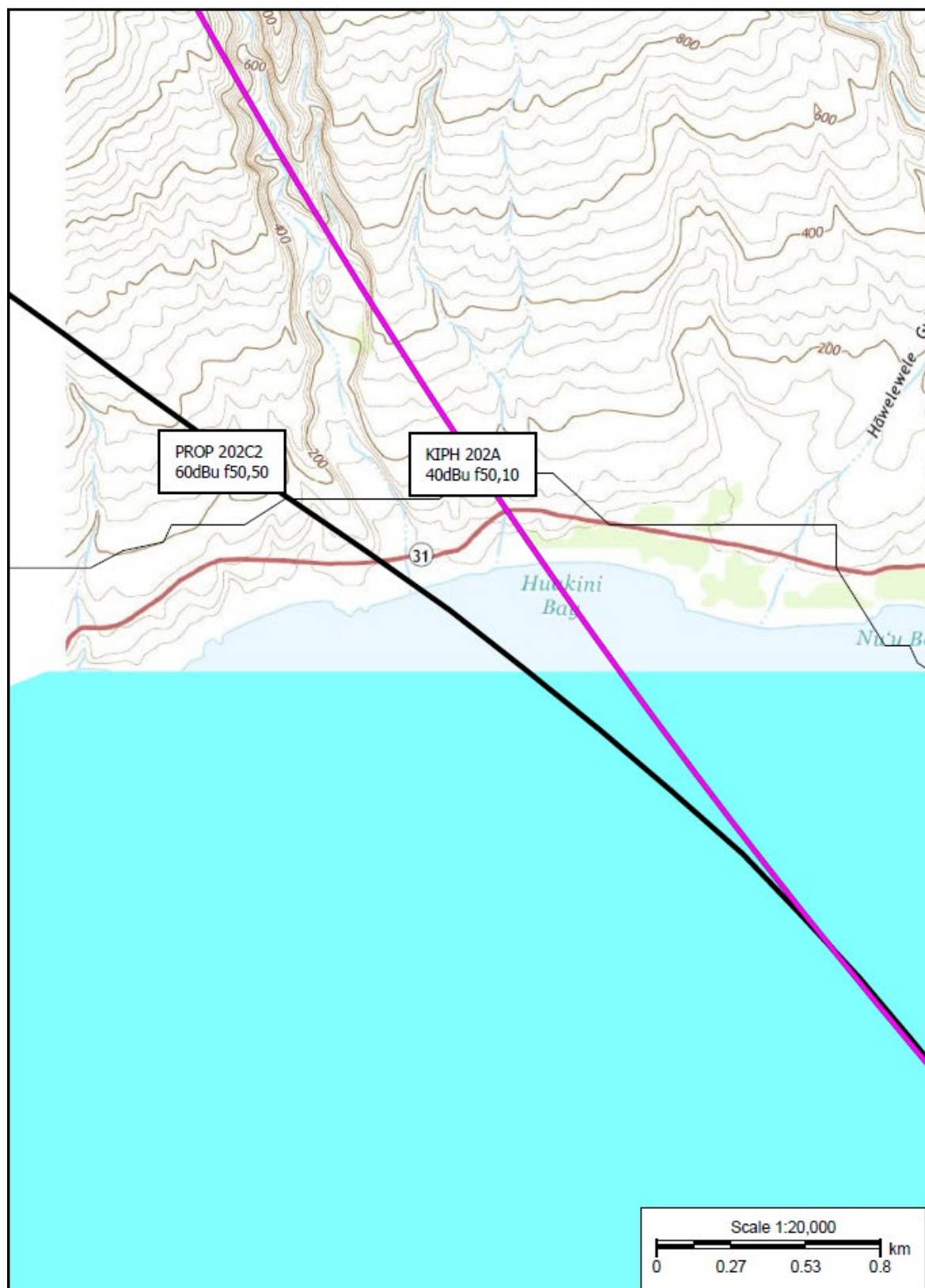


EXHIBIT B4- Northwest Contours

(Northwest) KIPH 40dBu f50,10 to PROP 202C2 60dBu f50,50

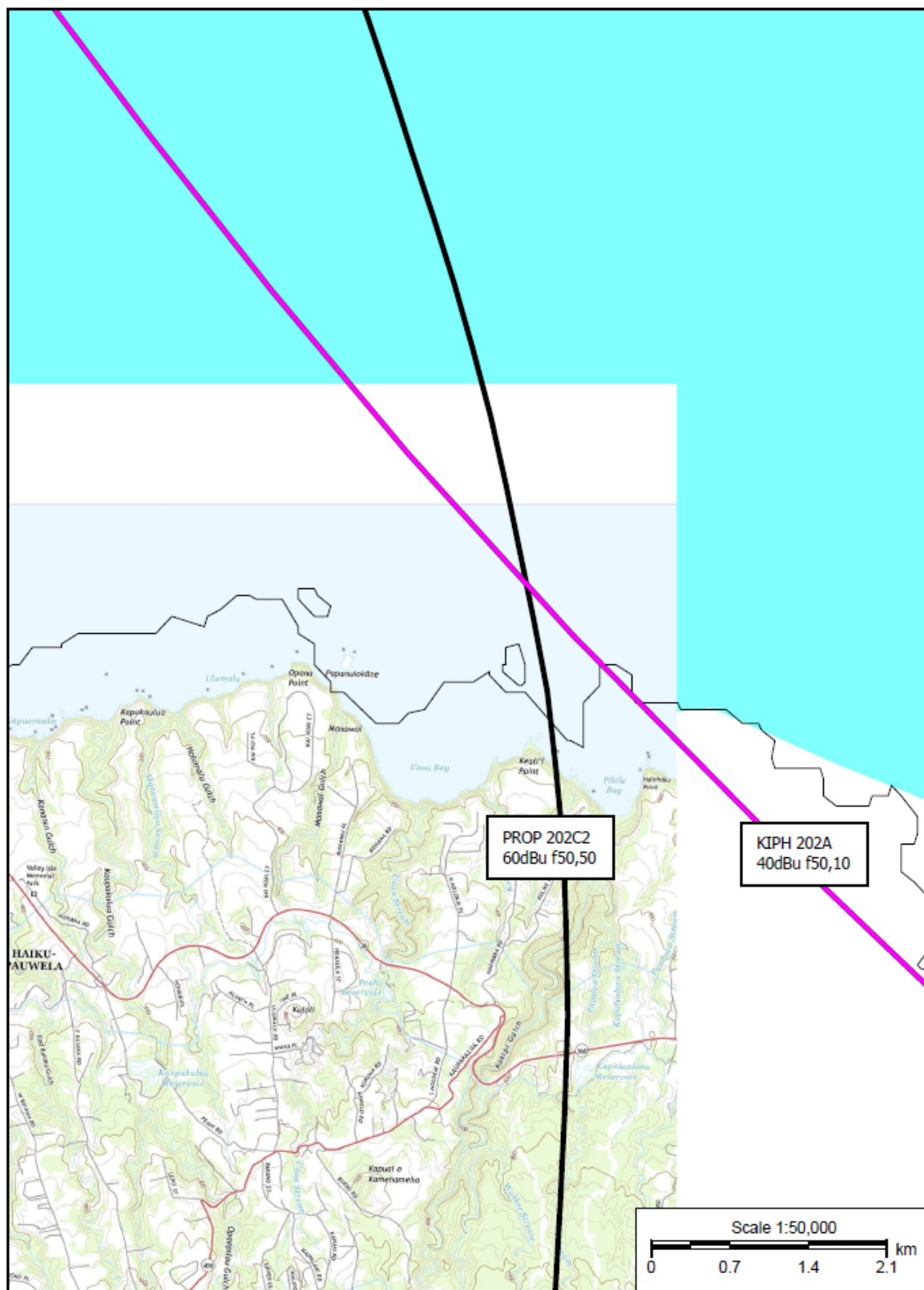


EXHIBIT C- Fair Distribution Exhibit

202C2- Fair Distribution of Service

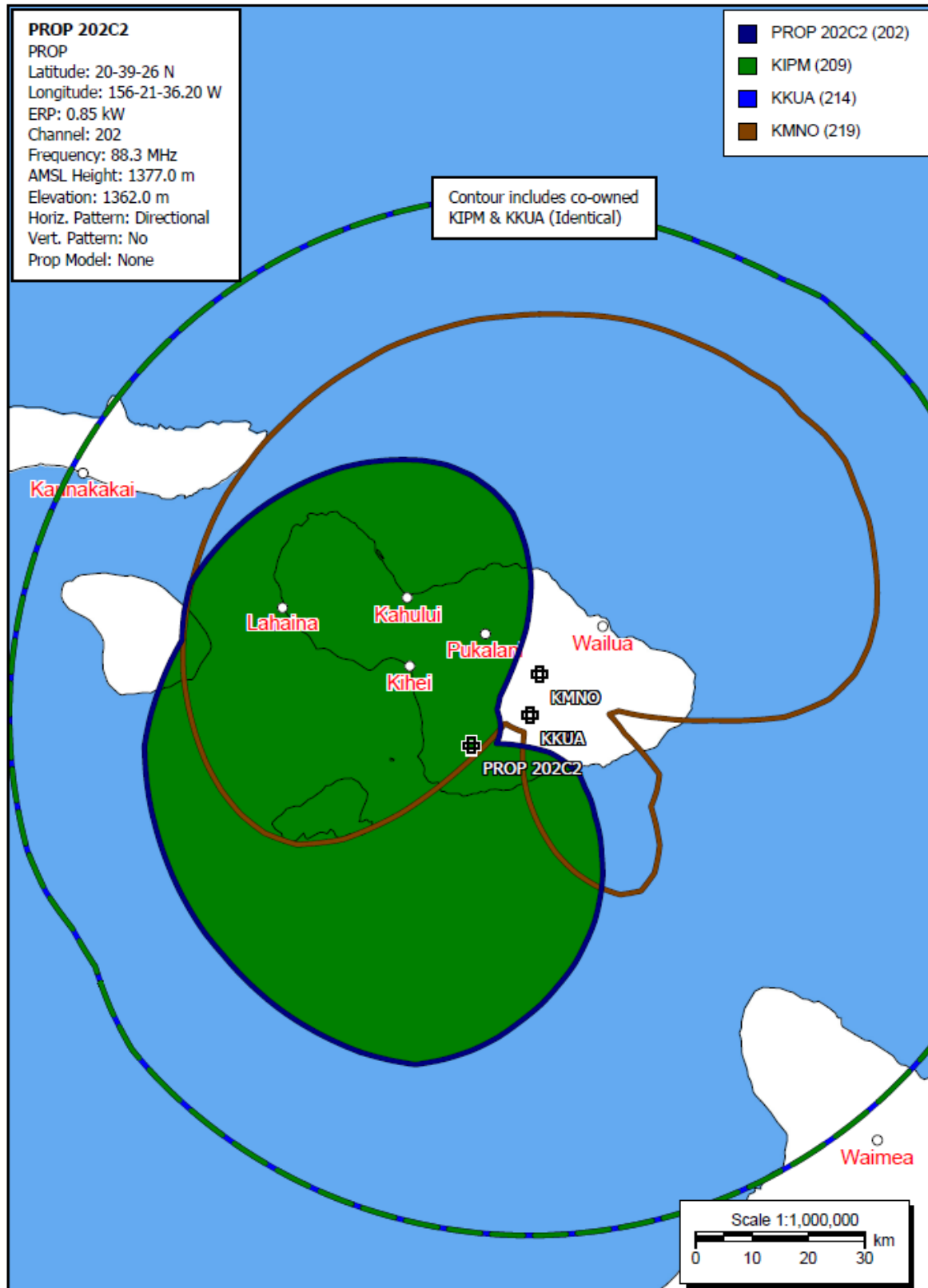


EXHIBIT D Community Coverage

PROP 202C2, Community Coverage, Kahului, HI (Maui)

